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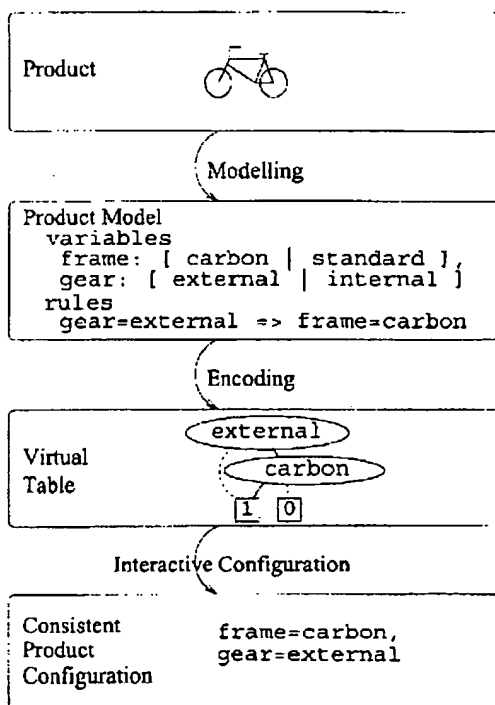
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[Continued on next page]

(54) Title: A METHOD OF CONFIGURING A PRODUCT USING A DIRECTED ACYCLIC GRAPH



(57) Abstract: A complex product is composed of several parts, where each part may depend on the other. As a consequence of these inter-dependencies, the selection of one part might exclude other parts from being included in the finished product. A *consistent configuration* is a selection of parts where all inter-dependencies are satisfied. A computer program for computer-assisted configuration helps an end-user to make choices that will lead to a consistent product. The preferred embodiment of the present invention, *Virtual Tabulation*, is a method for keeping track of inter-dependencies a large number of parts, to allow for the construction of an efficient and exact configuration program. Such a program allows interactive configuration over networks (e.g., the Internet). Another aspect of the invention, called *Smart Search*, allows a set of inter-dependencies among parts to be computed from a product database.



SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US,
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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, INSPEC, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	SABIN D ET AL: "PRODUCT CONFIGURATION FRAMEWORKS - A SURVEY" IEEE EXPERT, IEEE INC. NEW YORK, US, vol. 13, no. 4, 1 July 1998 (1998-07-01), pages 42-49, XP000791757 ISSN: 0885-9000 the whole document	1-42
Y	--- W0 00 13113 A (ANDERSSSEN H R ET AL) 9 March 2000 (2000-03-09) page 2, line 18 - line 25 abstract the whole document --- -/--	1-42

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

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- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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- "A" document member of the same patent family

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International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ATTARDI G ET AL: "Web-based configuration assistants." AI EDAM ARTIF. INTELL. ENG. DES. ANAL. MANUF., vol. 12, no. 4, September 1998 (1998-09), pages 321-331, XP002902516 CAMBRIDGE UNIV. PRESS (UK) ISSN: irn-issn 0890-0604. the whole document ---	1-9,25, 26, 32-37, 39-42
A	CHAN W ET AL: "MODEL CHECKING LARGE SOFTWARE SPECIFICATIONS" IEEE TRANSACTIONS ON SOFTWARE ENGINEERING, IEEE INC. NEW YORK, US, vol. 24, no. 7, 1 July 1998 (1998-07-01), pages 498-519, XP000781149 ISSN: 0098-5589 the whole document ---	10-42
A	US 5 825 651 A (GUPTA N ET AL) 20 October 1998 (1998-10-20) column 2, line 50 - line 60 column 5, line 67 -column 6, line 6 abstract; figure 5 -----	1-9,25, 26, 32-37, 39-42

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0013113	A	09-03-2000	AU 5369999 A	21-03-2000
			WO 0013113 A1	09-03-2000
			EP 1105821 A1	13-06-2001

US 5825651	A	20-10-1998	AU 731180 B2	22-03-2001
			AU 4236897 A	26-03-1998
			BR 9712795 A	14-12-1999
			EP 0925543 A1	30-06-1999
			JP 2000517450 T	26-12-2000
			NO 990864 A	15-04-1999
			WO 9810360 A1	12-03-1998
			US 6405308 B1	11-06-2002
